



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
West Coast Region  
1201 NE Lloyd Boulevard, Suite 1100  
Portland, OR 97232

March 24, 2014

Karen Burgess  
U.S. EPA Region 10  
1200 Sixth Ave.  
Suite 900  
Seattle, WA 98101

Dear Ms. Burgess:

At EPA's request, we are providing ballpark estimates of the cost of installing screens meeting NMFS' criteria at Columbia Generating Station (CGS) to demonstrate that such solution is "available". Cost information is not routinely gathered by NMFS because determinations for ESA Section 7(a)(2) compliance do not include cost of compliance as a relevant factor. Also, we have not performed engineering cost estimates of any kind and the actual cost of design, construction, and installation of new screens meeting NMFS juvenile screen criteria may be greater or lesser than those presented here.

We would also like to bring to your attention the fact that under NMFS' authority, new fish passage systems, including juvenile exclusion screens, have been required at many existing projects. For example, we commonly require new fish passage systems at existing hydroelectric projects when consulting on new Federal actions (such as the issuance of new operating licenses). Ensuring adequate fish protection and passage measures is a common objective for insuring ESA Section 7(a)(2) standards are met through our consultations with Federal action agencies and Habitat Conservation Plan applicants.

#### **Cost of screens**

At your request, we queried our regional engineering staff for cost estimates for similar sized screens (range, 20 to 100 cfs). The current withdrawal capacity of the intakes is 25,000 gpm, or about 56 cfs, with normal operation of about 17,000 gpm, or about 39 cfs.

#### **City of Richland municipal water intake**

A 38-cfs municipal water supply intake screen meeting NMFS' criteria is currently being developed for the City of Richland, Washington. Attached is the budget estimate for constructing the screen apparatus (~\$170,000). This cost does not include installation costs. The current location of the CGS intakes (~300 feet offshore in the Columbia River) would complicate installation substantially, but even if installation doubled this price, the cost would be less than \$400,000. Engineering costs are generally less than 20% of the construction cost, so a reasonable ballpark estimate for engineering, constructing, and installing screens, meeting NMFS' criteria at CGS, would likely be less than \$500,000. There may also be variable costs related to the price of energy if it became necessary to shut down the plant during installation. Project planning could avoid or minimize such costs. Safety considerations for nuclear power plants would also likely add to this cost estimate.



**California projects.** We also obtained cost estimates from several recent screen projects in California that are similar in scale.

<b>Landowner</b>	<b>CFS</b>	<b>Estimated Construction Cost</b>
Tisdale Irrigation District	27	200,000 Cone Alternative 250,000 Cylindrical Alternative
Alamo Farms	36	\$300,000
Hastings Land Company	115	Unable to monitor
Cranmore #1	40 cfs	\$350,000
Cranmore #2	20 cfs	\$200,000
Henle Family	20 cfs	\$200,000 plus
Sac River Ranch #1	12.5 CFS	\$130,000-\$150,000
Joe Sanchez Farms	20-25 cfs	\$200,000
River Garden Farms-Townsite	62 cfs	\$720,000*

\* This project includes civil works for the pump house located over the river. Cost of screen would be less.

Our engineers familiar with these projects report that complete screen installations typically cost between \$10k and \$20k per cfs screened.

### **Economic burden**

We would also like to bring to your attention that screens meeting NMFS' juvenile fish criteria have been installed at projects with much smaller annual revenues. For example:

#### **Irrigation Withdrawal:**

- 3 Mile Canyon Farms, Boardman ~500cfs (Willow Creek Arm of the main stem Columbia)
- Amstad Farms, Umatilla ~90cfs (Main Stem Columbia)
- Stahl Western Farms, Umatilla ~100cfs (Main Stem Columbia)

The three above are new or in progress, and were required to meet NMFS' juvenile screen criteria. It is very unlikely that any of these three projects generate as much annual revenue as the CGS. Hence, we consider it to be both feasible and affordable to replace the screens with new screens that meet our criteria.

### **Cost of studies**

As previously described, effective entrainment studies are expensive.

"Just prior to our call with EPA, I was on a call with Tom Dresser (Fish & Wildlife manager from Grant PUD (GPUD)) and Scott Carlon discussing what to do about a planned survival study at GPUD's projects given the crack in Wanapum Dam and conditions that haven't been seen in the project's history. This study is designed to provide statistically significant estimates (95% CI) of survival through both projects and route of passage (entrainment) through one dam. The price tag is \$1.6 million for a 1

year study, and three of these (at least) are required to encompass the range of environmental conditions." (B. Nordlund)

This is not a unique case. Juvenile fish entrainment studies are necessarily expensive. A detailed entrainment study could easily approach or even exceed the cost of replacing the screens. As previously stated, NMFS is not adverse to further study of the performance of the CGS intake screens, but believes it would be more economically efficient to simply replace them.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael P. Tehan".

for

Michael P. Tehan  
Assistant Regional Administrator  
Interior Columbia Basin Area Office  
NOAA Fisheries, West Coast Region

Cc: Jim LaSpina, EFSEC  
Shannon Khounnala, Energy Northwest